REMARKS

Claims 1-6 and 8-15 are pending in the present application. The Office Action and cited references have been considered. Favorable consideration is respectfully requested.

Claims 1-6 and 8-15 were rejected under 35 U.S.C. §103 as being unpatentable over Piasecki et al (U.S. Patent No. 5,117,453) in view of Jarvinen et al (U.S. Patent No. 6,170,073) and further in view of Ovadia (U.S. Patent No. 5,440,564). This rejection is respectfully traversed for the following reasons.

Claim 1 recites a digital telecommunication station operative in a telecommunication network, the network comprising at least two different transmission paths between the telecommunication station and at least one other element in the network, each path comprising a different link between the telecommunication station and the at least one other element in the network. The telecommunication station comprises at least one detector operative to receive at least two different types of signals, each associated with a different class of quality of service and to distinguish, for each received signal in its entirety, the type of signal to which it belongs, at least one switch controlled by one of the at least one detector, operative to channel signals received in accordance with the distinction made by the at least one detector, a first transmission means operative to transmit received signals along a first one of the at least two different transmission paths. Responsive to the channeling by the at least one switch, signals of at least one other type selected from among the at least two different

types of signals and associated with a lower class of quality of service are diverted from the first transmission path. The telecommunication station further comprises a second transmission means operative to transmit the diverted signals along a second one of the at least two different transmission paths. Claim 13 recites a method for transmission of telecommunication signals of at least two different types each associated with a different class of quality of service between a telecommunication station and at least one other element in a network along at least two transmission paths, the transmission paths each comprising a link between the telecommunication station and the at least one other element, the method comprising determining to which of a plurality of types of signals each of the signals received belongs and distinguishing therefrom signals associated with at least one class of quality of service different from entire signals associated with at least one other class of quality of service, based on the step of determining, diverting each entire signal associated with said at least one class of quality of service from a first one of the transmission paths along which each entire signal associated with at least one other class of quality of service is transmitted, transmitting the each entire signal of the at least one other class of quality of service along the first one of the transmission paths, and transmitting each entire diverted signal along a second one of the transmission paths. These features are not taught, disclosed or made obvious by the prior art of record.

The remarks submitted in the previous amendment are incorporated herein by reference. Additionally, Applicant respectfully submits that the amended claims are patentable over the prior art of record because the prior art does not teach or

suggest the apparatus and method recited in claims 1 and 13. Applicant is submitting herewith the Declaration of Oleg Litvak, which evidence establishes the non-obviousnes of the proposed combination. Mr. Litvak is a voice over IP system architect, with a rich and varied experience in the relevant field. Litvak Declaration, ¶¶ 1-2 (hereinafter "Litvak, ¶ ___"). Mr. Litvak considered the file history of the application. Litvak, ¶ 3. In his opinion, one of ordinary skill in the art is a person having a Bachelor of Science degree in electrical engineering, with 2-3 years experience in the telecommunications field. Litvak, ¶4. Mr. Litvak is familiar with the issues in the case, and with the underlying principles of law that govern this examination. Litvak, ¶¶ 5-11.

Claim 1 recites "at least one detector operative to receive at least two different types of signals, each associated with a different class of quality of service and to distinguish, for each received signal in its entirety, the type of signal to which it belongs."

The Examiner cited Piasecki, col. 2, lines 20-63 and Fig. 1. However, Piasecki contains no disclosure of any means for detecting signals having a different class of quality of service from one another. Litvak, ¶ 13.

The Examiner has acknowledged this and cites Jarvinen as allegedly teaching this feature. In the Office Action, the Examiner asserts that "[i]t is obvious and well known that facsimile data and voice data as taught by Piasecki have different quality of service based upon their type of signals." Still, even though that Piasecki is concerned with reducing the bandwidth consumed by applying various compression algorithms for various types of signals, Piasecki explicitly teaches that "[m]ultiplexer 31

multiplexes the output of the signal compression stage, comprising ADPCM 25, VBR 28, voiceband data algorithm 27 and facsimile modem 29 into one generally fully populated 2.048 or 1.544 Mbit/s signal" (col. 6, lines 5 – 9). Litvak, ¶ 16. The only teaching provided by Piasecki is to multiplex the various types of signals together, irrespective of their type, and obviously, irrespective of their quality of service. Litvak, ¶ 16.

Furthermore, on page 8, lines 3-6 of the Office Action, the Examiner maintained that "it would have been obvious to add an additional transmission path (BEARER 2) so that voice data is routed to one transmission path, wherein facsimile data is routed to anther transmission path to prevent interference". Contrary to the Examiner's statement, there is no technical problem (e.g., interferences that have to be prevented) to multiplex facsimile signals with voice signals and have them transmitted along the same bearer. Litvak, ¶ 18. Consequently, no person skilled in the art reading the Piasecki publication at the time the present invention was made, would have been motivated based on Piasecki (in combination with any of the other references cited by the Examiner) to divert signals based on their quality of service from the bearer that is taught by Piasecki to carry all types of signals. Litvak, ¶ 18.

In view of the above, the Examiner's conclusion as stated on page 8, lines 10 -14 that the combined teaching of Piasecki and Jarvinen with Ovadia allows the telecommunication device to route signals along different transmission paths in accordance with their type and on a permanent basis has no basis in the prior art, and if relevant at all, this combination teaches away from the present application, as it would

only be understood to provide transient solutions based on current congestion, current physical conditions of the link, etc. Litvak, ¶ 19.

The Action (page 7) states that the Examiner relied on Jarvinen "for the teaching of such well known of an association of each signal with a different class of quality of service (telecommunication device that includes a detector for detecting different types of signals and to classify signals into different classes based on upon signals quality of services [sic], …." This interpretation of Jarvinen is incorrect, and does not reflect how one of ordinary skill in the art would understand the reference or the term "quality of service." Litvak, ¶ 20-21.

In particular, the term "quality of service" would be understood by one of ordinary skill in the art as follows:

> In a White Paper which Microsoft put out in September 1997, it discussed QoS with the following words:
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> "What is Quality of Service? In contrast to traditional data traffic, multimedia streams, such as those used in IP Telephony or videoconferencing, may be extremely bandwidth and delay sensitive, imposing unique quality of service (QoS) demands on the underlying networks that carry them. Unfortunately, IP, with a connectionless, "best-effort" delivery model, does not guarantee delivery of packets in order, in a timely manner, or at all. In order to deploy real-time applications over IP networks with an acceptable level of quality, certain bandwidth, latency, and jitter requirements must be guaranteed, and must be met in a fashion that allows multimedia traffic to coexist with traditional data traffic on the same network.
>
> …
>
> Here's how Network computing of 9.4.2003 defines them: Quality of Service: A way to provide better or stable

> service for select network traffic through bandwidth or latency control.

Newton's Telecom Dictionary, 24th Ed. (2008), p. 760 (copy attached as Exhibit A). Litvak, ¶ 22.

The term "class of service" referred to in the above-quoted definition would be understood as follows:

> Here are words courtesy of Cisco relating to class of service issues on a packet switched network. "Networks typically operate on a best-effort delivery basis. All traffic has equal priority and an equal chance of being delivered in a timely manner. When congestion occurs, all traffic has an equal chance of being dropped. However, network managers are increasingly presented with a variety of bandwidth-hungry applications that compete for limited bandwidth on the enterprise network. These applications have a variety of characteristics. They may be mission-critical legacy applications with a Web interface, online business-critical applications, or newer multimedia-based applications such as desktop videoconferencing, Web-based training, and voice (telephone) over IP. Some of these applications are vital to core business processes, while many are not. It is the network manager's job to ensure that mission-critical application traffic is protected from other bandwidth-hungry applications, while still enabling less critical applications such as desktop videoconferencing. Enterprises that want to deploy new bandwidth-hungry applications are judging that it is paramount to also ensure the continued success of mission-critical applications over both the LAN and WAN. This can be achieved by defining network policies, which align network resources with business objectives and are enforced by means of QoS (Quality of Service) mechanisms. Without these QoS controls, non-vital applications can quickly exhaust network resources at the expense of more important ones, such as mission-critical applications, thus compromising business processes and certainly productivity. The QoS feature on the Cisco Catalyst 6000 family of switches prioritizes network traffic with IEEE 802.1p class-of-service (CoS) values that allow network devices to recognize and deliver high-priority traffic in a predictable manner. When congestion occurs, QoS drops low-priority traffic to allow delivery of high-priority traffic. Ports can be configured as trusted or untrusted, indicating whether or not to trust the CoS values in received frames to be consistent with network policy. On trusted ports, QoS uses

> received CoS values. On untrusted ports, QoS replaces received CoS values with the port CoS value."

Newton's Telecom Dictionary, 24th Ed. (2008), p. 234 (copy attached as Exhibit A). Litvak, ¶ 23.

Thus, the quality of service is not related to the type of signals (*e.g.*, facsimile data, voice data, etc.); each type of signal may be assigned a particular QoS by the network administrator to enable high-priority traffic to travel through the network reliably. Litvak, ¶ 24.

Jarvinen teaches one of ordinary skill in the art to classify signals into classes that are indicative of their influence on data quality. *See e.g.*, col. 2, lines 60-61. Litvak, ¶ 25.

In addition, as the Examiner himself has rightfully pointed out, the motivation to carry out the classification of Jarvinen as stated in p. 3 lines 13-20 of the Office Action, is very clear: "[t]his reduces the number of lost signals and reduces the need for bad signal substitution. Additionally, the number of undetected bad signals is reduced and thus signals having the potential to cause degradations in the reconstructed signals are detectable and inhibited from being used for such reconstruction." (Col. 3, lines 34-39.) Litvak, ¶ 26. However, this is not what the present invention is about. The classification proposed by the present invention is of signals which are associated with services of different quality, in other words, according to the present invention even if the signals were of the highest quality, still, as long

as they are associated with a service of lower class of quality, they will always be considered as such and be diverted from the first transmission path, which of course brings a completely different result as the result that would have been obtained by the combination proposed by the Examiner. Litvak, ¶ 27.

Therefore, even if a person skilled in the art would have had the motivation to combine the two references cited by the Examiner, there would have been no suggestion in this combination to lead that person to the present invention, and if at all, such combination teaches away from the present invention, as it leads the person reading the references to choose a classification based on the signal quality and not on the type of service with which that signal is associated. Litvak, ¶ 28.

The Examiner has relied on col. 7, lines 1- 56 and Fig. 2A of Piasecki, stating that they teach "a first transmission means operative to transmit received signals along a first transmission path, and to divert signals of at least one other type selected from said at least two different types of signals". (Office Action, page 2, second to last paragraph). One of ordinary skill in the art would understand that Piasecki does not teach the diversion of signals to another path, but rather how to adapt the transmission of the signals in accordance with their type. Litvak, ¶ 30. For example, Piasecki states: "[i]f a facsimile transmission is present detector 53 notifies the main CPU 44 of the trunk channel in which it occurs. If the detection occurs for a

trunk signal which is not classified as carrying facsimile signals, then the main CPU 44 marks the trunk channel as a facsimile trunk channel. Until marked otherwise, the trunk channel remains as a facsimile trunk channel. . . ." (Col. 6, line 67 to col. 7, line 5.) Litvak, ¶ 31. Thus, the signals are not diverted from one path to another; the channel is marked as a channel that carries a different type of signal. Litvak, ¶ 32.

In Piasecki, there is an apparatus for detecting a presence of voice band data signals and an apparatus for detecting the presence of group facsimile signals (column 2, lines 60-62). Litvak, ¶ 33. These apparatuses detect the presence of two different types of signals. Litvak, ¶ 33. However, one of ordinary skill in the art would understand that the type of signals disclosed in Piasecki do not relate to, *i.e.*, are not associated with, a different class of quality of service (see p. 4, 2nd full paragraph of the substitute specification filed on January 25, 2006 in the present application). Litvak, ¶ 34.

Further, one of ordinary skill in the art would not have been motivated to combine the teachings of Piasecki and Jarvinen. Litvak, ¶ 35. Piasecki describes a method and apparatus for interconnecting a plurality of telephone communication trunks to a transmission network (col. 2, lines 20-23), whereas Jarvinen discloses an encoder that encodes digital signals by classifying them into classes indicative of their influence on data quality and subjects them to error detection encoding (see col. 2, lines 57-65). Litvak, ¶

36. These are different technologies, involving different problems. Litvak, ¶ 37. One of ordinary skill would not have been motivated to look to Jarvinen to solve problems with the system disclosed in Piasecki. Litvak, ¶ 37.

In Piasecki, only one transmission path is taught linking the transmission station to the other elements in the network. Litvak, ¶ 38. In contrast, the network according to Applicant's claimed invention comprises "at least two transmission paths between the telecommunication station and at least one other element in the network, each path comprising a different link between the telecommunication station and the at least one other element in the network." Litvak, ¶ 39. According to the claimed invention, the types of signals are detected, and channeled, via the switch, through the different transmission paths dependent on the types of signal that is passing through the station. Litvak, ¶ 39.

Applicant's claimed invention looks at the entirety of the signal to determine the type of signal passing through the station and channels the signals to different transmission paths dependent on the signal type. Litvak, ¶ 40. In Jarvinen, the system looks at each bit of the signals individually and classifies each individual bit into classes dependent on the effect that the particular bit has on the quality of the signal. Litvak, ¶ 41. Thus, the entirety of each signal is not classified into types in Jarvinen; only the individual bits of the signal are classified. Litvak, ¶ 41. Thus, one of ordinary skill in the art

would not have been able to obtain the present claimed invention from the combination of the teachings of Piasecki and Jarvinen. Litvak, ¶ 42.

Claim 1 provides that "signals of at least one other type selected from among said at least two different types of signals and associated with a lower class of quality of service are diverted from the first transmission path." The diversion to which the present claimed invention relates is made not on the basis of the type of signal such as facsimile, speech, tone and non-facsimile voiceband data signals (as in Piasecki: see col. 5, lines 26-31), signal quality (as in Jarvinen: see col. 8, lines 1-10), or on line quality (as in Ovadia: see col. 3, lines 41-45). Litvak, ¶ 43-44.

Instead, and importantly, Applicant's claimed invention diverts signals to a second transmission path based on the class of quality of service associated with specific type(s) of signals. Litvak, ¶ 45. In particular, the detector is "operative to receive at least two different types of signals, each associated with a different class of quality of service and to distinguish, for each received signal in its entirety, the type of signal to which it belongs" and "responsive to the channeling by said at least one switch, signals of at least one other type selected from among said at least two different types of signals and associated with a lower class of quality of service are diverted from the first transmission path" and a second transmission means is operative to transmit the diverted signals along a second transmission path. Litvak, ¶ 46.

One of ordinary skill in the art would not understand Applicant's claim as requiring that whenever there is a problem with the signal quality, the signal, regardless of its type, should be diverted to the second transmission path. Litvak, ¶ 47. Instead, according to the present claimed invention, if the network operator defines, *e.g.*, that facsimile signals are associated with a low class of quality of service, all facsimile signals that will be forwarded via the claimed digital communication station of the present invention will always be diverted to the second path, regardless of the current conditions of or at the first path. Litvak, ¶ 48.

In Piasecki, only one transmission path is taught linking the transmission station to the other elements in the network. Litvak, ¶ 49. In contrast, Applicant's claimed invention comprises two transmission paths, each path comprising a different link between the telecommunication station and the at least one other element in the network, and the types of signals are detected, and channeled, via the switch, through the different transmission paths dependent on the types of signal that is passing through the station. Litvak, ¶ 50.

The Examiner asserted that Ovadia teaches "a telecommunication device having a plurality of transmission paths . . . and to divert . . . signals to an appropriate transmission path . . . to provide an improved data multiplexer capable from among of a plurality of baud communication rates dependent upon the quality of the communication

channel . . . ." The Examiner then concludes that "Therefore, it would have been obvious to combine Piasecki and Jarvinen with Ovadia to obtain the invention as specified in claim 1."

Ovadia states that the multiplexer is "capable of diverting part of the data being transmitted over a primary communication channel to a second communication channel either in response to increased user data demand or upon the main communication channel degrading below the required data throughput rate." Col. 1, lines 61-66. Litvak, ¶ 53. Thus, as it would be understood by one of ordinary skill in the art, the disclosure of Ovadia refers to providing a temporary solution to congestion problems or to line deterioration. See, e.g., col. 3, lines 16-17, 26-30 and 41-45, and 55-61. Litvak, ¶ 54. This is not the same or related to the present claimed invention of operating the communication station on a permanent basis, based on the type of the signals and the quality of service associated with that type of signal. Litvak, ¶ 55.

Furthermore, the Ovadia patent teaches away from the claimed invention. Litvak, ¶ 56. According to Ovadia, all signals entering multiplexer 10 are supposedly of the same type of signals but only have different rates ("multiplexer 10 received data from DTE1-DTE8 which may be operating at various data rates", col. 3, lines 50-51). Litvak, ¶ 57. However, even if one were to assume, for the sake of argument only, that the signals are of different types, it would only support a finding of non-obviousness, because

according to Fig. 1, all signals reach multiplexer 10, and the multiplexer 10 responds to the indicated impairment by reinitializing itself and its complementary multiplexer in system 20 so that the data rate over the leased line 18 is reduced to the level of the degraded line capacity and an additional data stream over the PSTN is established to carry the remaining data (see col. 3, lines 62-66). Litvak, ¶ 58. Thus, the diversion is of the multiplexed signal. Litvak, ¶ 59.

In order for such a configuration to be at all relevant to the present application, there should be a demultiplexer at the egress of multiplexer 10, together with the signal classification means to allow diversion of data signals from one path to the other based on the quality of service associated with the type of signals. Litvak, ¶ 60. As it does not make any sense to have a demultiplexer right after a multiplexer, no one skilled in the art would have considered modifying the solution described by Ovadia in a way that could read on the present claimed invention. Litvak, ¶ 61.

On page 8, the Examiner cites col. 1, line 65 through col. 2, line 4, as support for the proposition asserted: "the purpose of adding an additional transmission path as taught by Ovadia to a telecommunications device as taught by Piasecki is to relieve the traffic congestion and to provide an improved data multiplexer capable from among of a [sic] plurality of band communication rates dependent upon the quality of the communications channel", and that therefore Ovadia does not teach away from the claimed

invention. This cited portion use the term "quality of the communication channel". Litvak, ¶ 63. This means, to one of ordinary skill in the art, how clear the channel is, *e.g.,* the amount of noise in the signal transmitted along the channel. Litvak, ¶ 63. This is not the same thing as the "quality of service" ("QOS") parameter of the present claimed invention, which refers to, as discussed above, "a way to provide better or stable service for select network traffic through bandwidth or latency control." Litvak, ¶ 63. Further, the present invention does not involve a plurality of baud communication rates – it diverts signals having a particular type and associated with a lower class of quality of service from the first transmission path to the second transmission path. Litvak, ¶ 64.

For at least these reasons, Applicant respectfully submits that claims 1 and 13 are patentable over the prior art of record, whether taken alone or in combination as proposed in the Office Action.

Claims 2-6, 8-12 and 14-15 depend from and include the recitations of claims 1 and 13, respectively. Applicant respectfully submits that these claims are patentable in and of themselves and as they depend from and include the recitations of claims 1 and 13, respectively, for the reasons discussed above.

In view of the above amendments and remarks, Applicant respectfully request reconsideration and withdrawal of the outstanding rejections of record. Applicant respectfully submits that the application is in condition for allowance and early notice to this effect is most earnestly solicited.

If the examiner has any questions, he is invited to contact the undersigned at 202-628-5197.

Respectfully submitted,

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